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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,465	12/20/2001	Stephen Forrest	PRN-30101	2019
27774	7590	10/08/2003	EXAMINER	
MAYER, FORTKORT & WILLIAMS, PC 251 NORTH AVENUE WEST 2ND FLOOR WESTFIELD, NJ 07090			GUIHARAY, KARABI	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/028,465	FORREST ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Karabi Guharay	2879	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on PreAmendment, filed on 15 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 28-38 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-27 is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-16, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 4-6, 17 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                      | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                             | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>12/01</u> . | 6) <input checked="" type="checkbox"/> Other: <u>IDS 03/02, IDS 01/03</u> . |

***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-27 drawn to a protected organic optoelectronic device, classified in class 313, subclass 512.
- II. Claims 28-38, drawn to method for making organic optoelectronic device, classified in class 445, subclass 25.

Inventions of Group I and Group II are related as product and process of making it. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process. For example, the product as claimed can be made as follows, instead of vacuum depositing, use liquid coating method for forming first protection layer and then a second protection layer on the first protection layer.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. David B. Bonham on 09/12/03 a provisional election was made with traverse to prosecute the invention of group I, claims 1-27. Affirmation of this election must be made by applicant in replying to this Office

action. Claims 28-38 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Preliminary Amendment of specification, filed on 15 July 2003 has been entered.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 8-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Graff et al. (US 6522067).

Regarding claim 1, Graff et al. disclose a protected organic optoelectronic device 400 (see Fig 3) comprising a substrate 105, active region 120 (organic light emitting layer stack) on the substrate, a first protective layer (270, 110 of Fig 2) of a first material disposed over the active region 120 and a second protective layer 130 disposed over the first protective layer 270, where second protective layer 130 comprises multiple sub-

layers comprises alternating series of two or more first polymeric sub-layers (190, 180) and two or more first high density sub-layers (lines 40-45 of column 3) wherein multiple sublayers comprise at least one sublayer of a second material (polymer layer 190, 170 are different from polymer layer 280, see lines 21-28 of column 5) and at least one sublayer of a third material (high density material 170) where first second and third material differ from one another (see lines 31-48 of column 3).

Regarding claim 2, Graff et al. disclose that organic optoelectronic device comprising OLED 120, comprising an anode 200, and cathode 220 and a light emitting layer 210 between them (lines 49-53 of column 3).

Regarding claim 3, Graff et al. disclose that first material 270 comprises a material selected from the group consisting of organometallic material, inorganic material and polymeric material (line 40-51 of column 4).

Regarding claim 8, Graff et al. disclose that the inorganic material for barrier layer 290 is selected from the group consisting of metals, metal oxides, metal nitrides, metal carbides and metal oxynitrides (lines 34-36 of column 5).

Regarding claim 9, Graff et al. disclose that the inorganic materials are selected from the group silicon, silicon oxides, silicon nitrides, silicon carbides, silicon oxynitrides indium oxides, indium tin oxides, zinc indium tin oxide, tin oxide, aluminum oxides, aluminum nitrides, and titanium oxides (lines 37-43 of column 5).

Regarding claim 10, Graff et al. disclose that the alternating series comprises 3 to 7 polymeric sublayers and 3 to 7 high-density sub-layer (see Fig 2).

Regarding claim 11, Graff et al. disclose that the substrate 105 comprises polyimides (lines 9-13 of column 5).

Regarding claim 12, Graff et al. disclose that one or more polymeric sub-layers (180, 190) comprise polyacrylates (lines 42-43 of column 4).

Regarding claim 13, Graff et al. disclose that one or more high-density sub-layers 170 comprise a material selected from the group consisting of metals, metal oxides, metal nitrides, metal carbides and metal oxynitrides (lines 34-36 of column 5).

Regarding claim 14, Graff et al. disclose that the first protective layer 270 is disposed over the active region and contacting the cathode 220 (see Fig 2 & Fig 3).

Regarding claim 15, Graff et al. disclose that the first protective layer 110 is disposed over the active region 120 and contacting the anode 200.

Regarding claim 16, Graff et al. disclose that the at least one of the polymeric sub-layers 180 is a polyacrylate disposed over and contacting the first protective layer 270 (lines 42-44 of column 4).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 & 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graff et al. as applied to claim 1 above, and further in view of Silvernail et al. (US 6597111).

Regarding claim 7, Graff et al. teaches all the limitations of claim 7 except for the polymeric material being polyacrylates instead of one from the claimed group consisting parylenes, perylenes, fluorinated polymers and poly(phenylene vinylenes). However, Silvernail et al. teach that fluorinated polymers, parylene, perylene, and polyacrylates are polymeric planarization materials suitable for low permeability for moisture and air (lines 61 of column 7-line 8 of column 8). Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to use one of these materials, since these polymeric materials are considered as art recongnized equivalent material as low permeable polymer material for encapsulation against atmosphere.

Regarding claim 19, Graff et al differs from claim 19 for the getter layer between protective layers. However, Silvernail et al. teach that getter layer can be provided together with protection layer in order to provide an additional measure in the event reactive gases penetrate in the OLED device (lines 24-35 of column 11). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a getter layer as disclosed by Silvernail et al. in the device of Graff et al. in order to provide extra protection against reactive gases.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Graff et al. as applied to claim 1 above, and further in view of Silvernail (US 6576351).

Regarding claim 20, Graff et al. teach all the limitations of claim 19, except for end caps extending from a top surface of the device downwardly along edges of the device and contact the substrate. However, in the same field of endeavor, Silver discloses caps 160 (Fig 9) extending from the top surface of the OLED extending downwardly contacting the substrate (110b) for further encapsulating OLED device. Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to use cap for the OLED for further protecting.

***Allowable Subject Matter***

Claims 21-27 are allowed over the prior art of record.

Claims 4-6, 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record neither teach nor suggests a protected organic optoelectronic device comprising all the claimed limitation of 21, particularly the limitation of first protective layer comprising an organometallic material.

***Other Prior Art Cited***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure : Silvernail (US 2003/0117066); Weaver (US 2003/0085652).

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (703) 305-1971. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.



Application/Control Number: 10/028,465

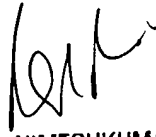
Page 8

Art Unit: 2879

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Karabi Guharay  
Patent Examiner  
Art Unit 2879



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